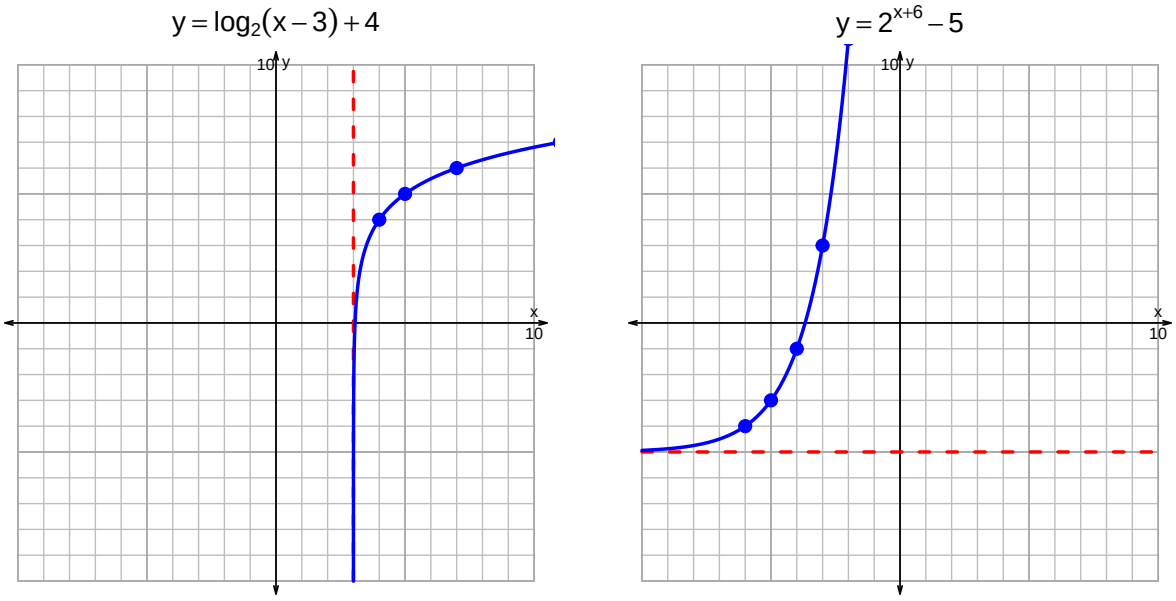
Name: Date:

S18QUIZ: EXP LOG (SLTN v215)

1. Graph $y = \log_2(x-3)+4$ and $y = 2^{x+6}-5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$11 = \left(\frac{7}{5}\right) \cdot 2^{4t/3}$$

Divide both sides by $\frac{7}{5}$.

$$\frac{11 \cdot 5}{7} = 2^{4t/3}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{11 \cdot 5}{7}\right) = \frac{4t}{3}$$

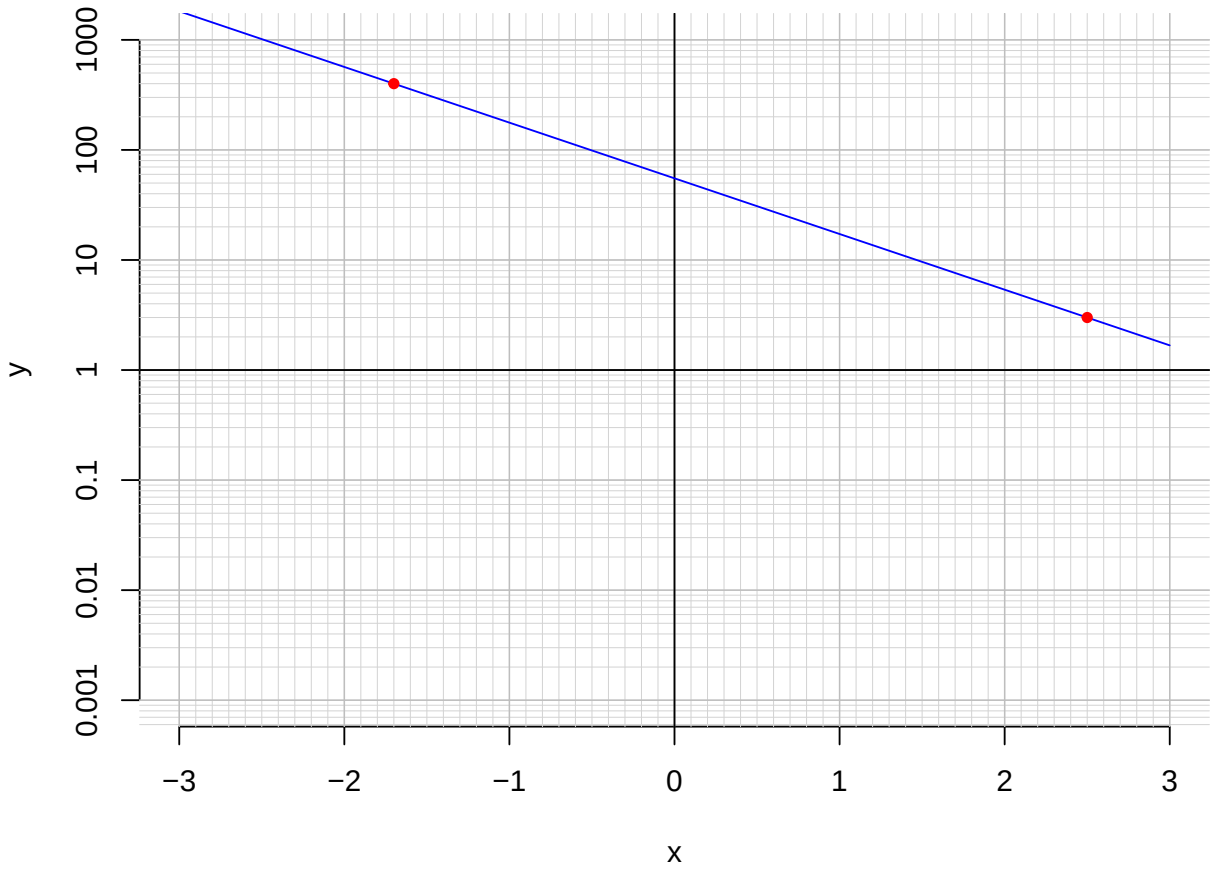
Divide both sides by $\frac{4}{3}$.

$$\frac{3}{4} \cdot \log_2\left(\frac{11 \cdot 5}{7}\right) = t$$

Switch sides.

$$t = \frac{3}{4} \cdot \log_2\left(\frac{11 \cdot 5}{7}\right)$$

3. An exponential function $f(x) = 55.2 \cdot e^{-1.16x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-1.7)$.

$$f(-1.7) = 400$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{1.16} \cdot \ln\left(\frac{x}{55.2}\right)$$

c. Using the plot above, evaluate $f^{-1}(3)$.

$$f^{-1}(3) = 2.5$$